IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of indoor positioning in a structure having corridors and/or walls extending in substantially perpendicular longitudinal and lateral directions, the method ~~including~~ comprising the acts of:

providing a base station with an antenna having a $cosec^2$ sensitivity pattern oriented longitudinally;

providing a mobile station with an omnidirectional antenna;

transmitting a ranging signal from one of the base station and the mobile station to the other of the mobile station and base station; and

determining ~~the~~ a relative signal strength of the received ranging signal compared with the transmitted ranging signal to obtain a measure of lateral distance of the base station from the

mobile station.

2. (Currently Amended) ~~A~~ The method according to claim 1 further comprising the acts of:

providing a second base station,

transmitting a second ranging signal from one of the second base station and the mobile station to the other of the second base station and the mobile station; and

determining ~~the~~ a position of the mobile station using data from the ranging signals transmitted between the base stations and the mobile station.

3. (Currently Amended) ~~A~~ The method according to claim 2, wherein the second base station is provided with an antenna having a cosec^2 sensitivity pattern oriented laterally.

4. (Currently Amended) ~~A~~ The method according to claim 2 further comprising the acts of:

providing a third base ~~station, and~~ station;

transmitting a third ranging signal from one of the third base

station and the mobile station to the other of the third base station and the mobile station; and

determining the position of the mobile station using data from the ranging signals transmitted between the base stations and the mobile station.

5. (Currently Amended) ~~A~~ the method according to claim 4, wherein the third base station is provided with an antenna having a $cosec^2$ sensitivity pattern oriented vertically.

6. (Currently Amended) A base station for use in positioning a mobile station in a structure having ~~preferred~~ longitudinal and lateral directions, comprising:

an antenna; and

a transmitter and/or receiver arranged to transmit and/or receive ranging signals to and/or from the mobile station through the antenna;

wherein the antenna has a $cosec^2$ sensitivity pattern for orientation longitudinally, laterally or vertically in the building for determination of a lateral distance between the base station

and the mobile station.

7. (Currently Amended) A system for the positioning ~~a~~ of the mobile station in ~~a~~ the structure having corridors and walls extending in substantially perpendicular longitudinal and lateral directions, the system comprising:

a plurality of base stations according to claim 6; ~~and~~

~~a~~ wherein the mobile station ~~having~~ has an omnidirectional antenna; and

wherein the system is arranged to transmit the ranging signals between the mobile station and the base stations and to measure ~~the~~ attenuation of ~~the~~ received ranging signals relative to ~~their~~ transmitted strengths of the ranging signals.

8. (Currently Amended) ~~A~~ The system according to claim 7 ~~wherein the system further includes~~, further comprising code for calculating ~~the~~ position of the mobile station from ~~the~~ measured attenuation values and ~~the~~ positions of the base stations.

9. (Currently Amended) An installed system comprising:

a building having corridors and walls extending in substantially perpendicular, longitudinal and lateral directions; and

a plurality of base stations according to claim 6 installed in the building, wherein:

a first one of the base stations has ~~its~~ a first antenna orientated with the $cosec^2$ pattern orientated longitudinally within the building; and

a second one of the base stations has ~~its~~ a second antenna orientated with the $cosec^2$ pattern orientated laterally within the building.

10. (Currently Amended) ~~An~~ The installed system according to claim 9, wherein a third one of the base stations has ~~its~~ a third antenna orientated with the $cosec^2$ pattern orientated vertically within the building.

11. (New) The base station of claim 6, wherein the antenna having the $cosec^2$ sensitivity pattern is configured to obtain a measure of the lateral distance of the base station from the mobile

station.

12.(New) A system for determining a position of a mobile station in a structure, the system comprising a base station having an antenna with a $cosec^2$ sensitivity pattern for orientation longitudinally, laterally or vertically in the structure, wherein the base station is configured to transmit a signal to the mobile station for determination of a lateral distance between the base station and the mobile station.

13.(New) The system of claim 12, wherein at least one of the mobile station and the base station is configured to determine the position by comparing a received strength of a signal received by the mobile station to a reference strength.

14.(New) The system of claim 13, wherein the reference strength takes into account a transmit strength of the signal transmitted by the base station and an antenna gain of the antenna of the base station.

15.(New) The system of claim 13, wherein the received strength includes a transmission power value of the signal transmitted by the base station and received by the mobile station.

16.(New) The system of claim 15, wherein the transmission power value includes a transmit strength of the signal transmitted by the base station and an antenna gain of the antenna of the base station.

17.(New) The system of claim 12, further comprising a filter configured to discard position fixes involving rapid changes in the position.

18.(New) The system of claim 12, wherein the mobile station comprises an omnidirectional antenna for receiving the signal from the antenna with the cosec^2 sensitivity pattern.

19.(New) The system of claim 12, wherein the signal from the antenna with the cosec^2 sensitivity pattern provides a measure of the lateral distance between the base station and the mobile

station.

20.(New) The system of claim 12, wherein the lateral distance is determined from a one way signal form the base station to the mobile station.

21.(New) The system of claim 12, further comprising a plurality of base stations located at edges of the structure.

22.(New) The system of claim 12, further comprising a plurality of base stations including:

the base station having the antenna with the $cosec^2$ sensitivity pattern oriented in a longitudinal direction in the structure;

a second base station having a second antenna with the $cosec^2$ sensitivity pattern oriented in a lateral direction in the structure; and

a third base station having a third antenna with the $cosec^2$ sensitivity pattern oriented in a vertical direction in the structure.

23.(New) The system of claim 22, wherein the third base station is located on a roof of the structure and has the cosec^2 sensitivity pattern orientation vertically downwards.